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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/024,103	12/17/2001	Michiaki Maruoka	NECB 19.265	3507

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EXAMINER

NGUYEN, KHIEM D

ART UNIT PAPER NUMBER

2823

DATE MAILED: 09/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/024,103

Applicant(s)

MARUOKA, MICHIAKI

Examiner

Khiem D Nguyen

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 15-20 is/are rejected.
- 7) ☒ Claim(s) 11-14 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) ✓
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 1, 6-10, and 17-20 are rejected under 35 U.S.C. 102(e) as being anticipated by

Hsue et al. (U.S. Pub. 2002/0192921).

In re claims 1 and 10, Hsue discloses a semiconductor device having a bonding pad electrode of a multi-layer structure, the semiconductor device comprising a semiconductor substrate (page 3, paragraph [0040]); a lower electrode layer ((FIG. 3A, 204a, 204b) formed on the semiconductor substrate; a cover insulating film (FIG. 3A, 210) formed on the lower electrode layer, wherein the cover insulating film has an opening (FIG. 3A, 214a, 214b) for exposing at least a portion of the lower electrode layer, a step portion is provided at a side wall of the opening of the cover insulating film, the size of the opening (FIG. 3A, 216a, 216b) at the upside portion of a step surface of the step portion is larger than the size of the opening at the downside portion of the step surface; and an upper electrode layer (FIG. 3B, 222a, 222b) formed on the portion of the lower electrode layer exposed via the opening, the upper electrode layer being made of material having corrosion resistance against substrate which is corrosive to the lower

electrode layer, and the upper electrode layer overlaps the step surface of the step portion (pages 3-4, paragraphs [0040]-[0047] and FIGS. 3A-H).

In re claims 6-7 and 17-18, Hsue discloses a high conductivity metal plate (FIG. 3C, 226) coupled onto the upper electrode layer via a conductive paste (FIG. 3C, 223) wherein the conductive paste is an Ag paste, and the metal plate is a copper plate.

In re claims 8-9 and 19-20, Hsue discloses wherein the bonding pad electrode is a source pad electrode of a power MOSFET (pages 3-4, paragraphs [0040]-[0047] and FIGS. 3A-H).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-5 and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsue et al. (U.S. Pub. 2002/0192921) as applied to claims 1, 6-10, and 17-20 above, and further in view of Yamanaka et al. (U.S. Pub. 2002/0013011) and Munoz et al. (U.S. Patent 6,376,910).

In re claims 2-4 and 15, Hsue fails to explicitly disclose wherein the cover insulating film comprises a silicon nitride film and a PSG (phospho silicate glass) film formed on the silicon nitride film and wherein the lower electrode layer comprises a metal film containing aluminum.

Yamanaka discloses wherein the cover insulating film comprising a silicon nitride film (SiN) and a PSG film formed on the silicon nitride film (page 12, paragraph [0197]) and wherein the electrode layer comprises aluminum (pages 22-23, paragraph [0358]). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teaching of Hsue and Yamanaka to enable the insulating film, which comprises a silicon nitride and a PSG films and the lower electrode layer, which comprises a metal film containing of aluminum of Hsue to be formed

In re claims 5 and 16, Hsue fails to explicitly disclose wherein the upper electrode layer comprises a TiNiAg film.

Munoz discloses wherein the electrode layer (FIG. 5, 13) comprises a TiNiAg (col. 2, lines 30-41). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teaching of Hsue and Munor to enable the upper electrode layer, which comprises a TiNiAg film of Hsue to be formed.

Allowable Subject Matter

Claims 11-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khiem D Nguyen whose telephone number is (703) 306-0210. The examiner can normally be reached on Monday-Friday (8:00 AM - 5:00 PM).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on (703) 306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-9179 for regular communications and (703) 746-9179 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

K.N.
August 8, 2003


Olik Chaudhuri
Supervisory Patent Examiner
Technology Center 2800